CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

SCANNING ELECTRON MICROSCOPY STUDY OF ADHESION IN SEA URCHIN BLASTULAE

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Science in

Biology

by

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ABSTRACT

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The dissociation supernatant (DS) isolated by disaggregating Strongylocentrotus purpuratus blastulae in calcium and magnesium-free seawater specifically promotes reaggreagtion of S. purpuratus blastula cells. The purpose of this study was to use scanning electron microscopy to examine the gross morphology of aggregates formed in the presence of DS to see if it resembles adhesion in partially dissociated blastulae. A new reaggregation procedure developed here, using large volumes of cell suspension and a large diameter of rotation, was utilized to obtain sufficient quantities of aggregates for scanning electron microscopy. The results indicate that aggregates formed in the presence of DS resemble partially dissociated intact embryos in terms of the direct cell-cell adhesion observed.

DS did not cause aggregation to form as a result of the entrapment of cells in masses of extracellular material. These studies provide the groundwork for further studies using transmission electron microscopy to more precisely define the adhesive contacts made by cells in the presence of the putative adhesion molecules present in DS.

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